The genus *Gynandrobremia* Mamaev (Diptera: Cecidomyi-idae) new to China with description of one new species

Kelong JIAO[1]①, Hao WANG[1], Yuanhong WANG[1], Wenjun BU[2]①

1. *Department of Plant Protection, College of Horticulture and Landscape, Tianjin Agricultural University, 22 Jinjing Road, Tianjin 300384, China*

2. *Institute of Entomology, College of Life Sciences, Nankai University, 94 Weijin Road, Tianjin 300071, China*

Abstract: The genus *Gynandrobremia* Mamaev, 1965 is recorded from China for the first time. A new species, *Gynandrobremia effurcata* Jiao & Bu sp. nov. is described and illustrated. A key to males of all known species of the genus in the world is provided. The generic diagnosis is revised.

Key words: gall midge; taxonomy; key

嵌瘿蚊属 *Gynandrobremia* Mamaev 中国新纪录及一新种记述（双翅目：瘿蚊科）

焦克龙[1]①，王浩[1]，王远宏[1]，卜文俊[2]①

1. 天津农学院园艺园林学院植保系，天津 300384；2. 南开大学生命科学学院昆虫学研究所，天津 300071

摘要：首次报道中国嵌瘿蚊属 *Gynandrobremia* Mamaev, 1965 在我国分布，记述 1 新种：叉嵌瘿蚊 *Gynandrobremia effurcata* sp. nov.，并对本属属征进行修订，提供世界该属雄虫分种检索表。

关键词：瘿蚊；分类；检索表

Introduction

The genus *Gynandrobremia* Mamaev, 1965 was erected to include the type species *Gynandrobremia viciae* Mamaev and *G. salicicola* Mamaev both from Yaroslavl, Russia. So far, there are five valid species in this Palaearctic genus after another three species were described from Russian Far East by Fedotova (2002, 2003).

Based on the specimens collected in China, the genus *Gynandrobremia* Mamaev, 1965 is newly recorded from China. The new species, *Gynandrobremia effurcata* Jiao & Bu sp. nov. is described and illustrated. A key to males of all known *Gynandrobremia* species in the world is provided. And the generic diagnosis is revised.

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① Corresponding authors, E-mails: jiaokelong@163.com; wenjunbu@nankai.edu.cn

Material and methods

The specimens of the new species were collected by sweeping nets and light traps. Adult specimens were preserved in 70% ethanol in the field as soon as collected. For morphological observation, some of the ethanol preserved specimens were mounted on slides in Canada balsam. The morphological terminology follows Gagné (1981). The holotype and other type specimens were deposited in the Institute of Entomology, College of Life Sciences, Nankai University (abbreviated as NKUM), Tianjin, China. All the figures are based on the holotype (slide number: NKUCecid. No. MoGA001).

Taxonomy

Gynandrobremia Mamaev, 1965

Gynandrobremia Mamaev, 1965: 679. Type species: *G. viciae* Mamaev (original designation).

Revised diagnosis. Eyes holoptic on vertex. Palpus with palpiger and 4 segments, the last three segments longer than first one. Antenna of both sexes with 12 flagellomeres, each with a shorter neck and only one subcylindrical basal node. Wing hyaline, sparsely covered with narrow scales and setose; vein R_1 joining vein C at basal 2/5; vein R_5 bent a little forward, joining vein C beyond the wing apex; vein Cu forked. Tarsal claw usually toothed on all legs or not. Male genitalia: gonocoxite with a slightly or inconspicuously swollen and densely pubescent mediobasal lobe; gonostylus strong and arched; cerci with two rounded lobes; hypoproct emarginated with a deep depression forming two fingerlike lobes; aedeagus usually gradually tapered to apex. Female genitalia unknown.

In this present paper, the diagnosis of the genus *Gynandrobremia* is first provided with an adequate and clear description. And *Gynandrobremia* is characterized in the tribe Monodiplosini (Skuhravá 1997) by the unique combination of gonocoxite with a slightly or inconspicuously swollen and densely pubescent mediobasal lobe, hypoproct emarginated with a deep depression and aedeagus tapered.

Key to males of all known *Gynandrobremia* species in the world

1. Cerci almost as long as hypoproct··· *G. salicicola* Mamaev
-. Cerci distinctly shorter than hypoproct···2
2. Cerci a little emarginated with a depression shorter than half of the distance between the two lobes; gonocoxite with an inconspicuously swollen or almost invisible mediobasal lobe···································· 3
-. Cerci with a deep depression almost as long as the distance between the two lobes; gonocoxite with a conspicuously visible swollen mediobasal lobe··4
3. Gonocoxite 1.90–1.95 times as long as wide in the middle; hypoproct with a U-shaped depression; apex of aedeagus tapered··· *G. populicola* Fedotova
-. Gonocoxite 1.65–1.70 times as long as wide in the middle; hypoproct Y-shaped; apex of aedeagus rounded and swollen··*G. maackiaefloris* Fedotova
4. Aedeagus with smooth apex, without pores and sharply pointed·····························*G. salicifoliae* Fedotova
-. Aedeagus with rough apex, covered with many pores and just tapered but not pointed·······························5
5. Gonostylus approximately as long as half the width of genitalia, but not able to reach the other side of the apex of aedeagus·· *G. viciae* Mamaev

-. Gonostylus longer than half the width of genitalia, and able to reach the other side of the apex of aedeagus··· *G. effurcata* Jiao & Bu **sp. nov.**

Gynandrobremia effurcata Jiao & Bu sp. nov.

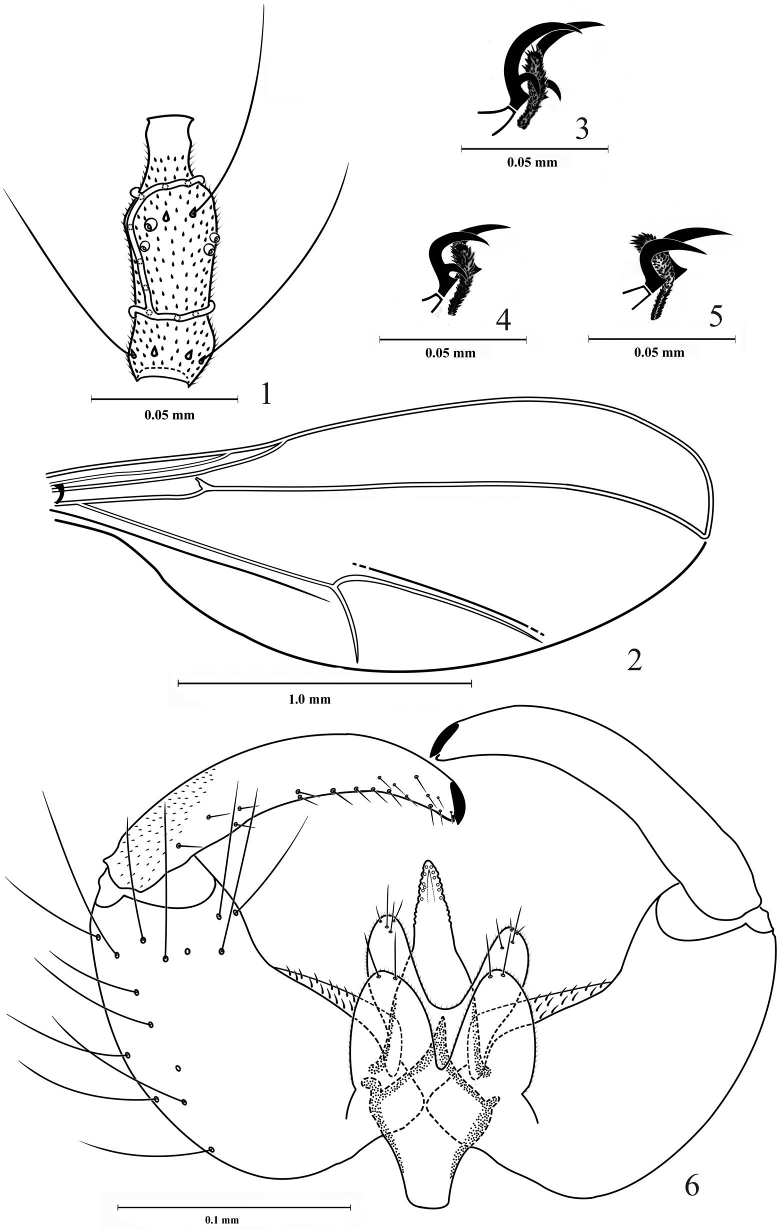
Diagnosis. The adult male is distinguished from the other species in the genus by the following combination of the three characters: cerci distinctly shorter than hypoproct, with a deep depression almost as long as the distance between the two lobes; gonostylus longer than half the width of genitalia, and able to reach the other side of the apex of aedeagus; the apex of aedeagus rough, with many pores.

Description. Adult male. Body yellow brown. Body length 1.80–1.85 mm (n = 6). Wing length (measured from the base) 2.27–2.28 mm (n = 6). Wing width 0.83–0.85 mm (n = 6).

Head. Postvertical peak small, with 2–3 longer setae. Eye bridge 7 facets long in the middle of vertex. Palpus sparsely setose, with palpiger and 4 segments, last three segments longer than first one. Antenna with 12 flagellomeres; pedicel subglobular, smaller than scape, both densely covered with setae ventrally; node of all flagellomeres subcylindrical, a little broadened subbasally, neck of all flagellomeres much shorter than node; each node with 2 horizontal, appressed, band-shaped circumfila, subapically and subbasally respectively linked by two similar longitudinal circumfila, and 2 whorls of long, strong and irregular setae, one subbasal and one subapical; first and second flagellomeres fused; 3rd flagellomere as in Fig. 1, with the node 2.9–3.0 times as long as wide and the neck 1.55 times as long as wide, 0.30–0.31 times length of node; 12th flagellomere with an apical prolongation.

Thorax. Wing (Fig. 2) hyaline, 2.7–2.8 times as long as wide. Vein Sc weak, C, R_1 and R_5 strong; vein R_1 joining vein C at basal 2/5; vein R_5 bent a little forward, joining vein C beyond the wing apex; vein M_3 so weak as to be almost invisible both at basal half and the distal; vein Cu forked, vein PCu parallel with Cu. Legs densely covered with narrow scales and sparse setae; femur of fore-, mid- and hind-legs longer than tibia, with proportions respectively 1.05–1.10, 1.15–1.18 and 1.18–1.20 times length of tibia; the second tarsus of fore-leg 0.95–0.96 times shorter than tibia; the fore tarsus with proportions from 1st to 5th segment: 1.00 : 8.70–8.80 : 5.25–5.35 : 3.80–4.00 : 2.00–2.10. Tarsal claws (Figs. 3–5) both toothed on fore-leg, with one toothed and another untoothed on mid-legs, and untoothed on hind-legs; empodium on all legs distinctly shorter than tarsal claw.

Abdomen. Each tergite and sternite densely covered uniformly with scales. 1st–6th tergites developed and strip-shaped, with an irregular but mostly single, posterior row of setae, and with many scattered lateral setae and one anterior pair of trichoid sensilla except for 1st tergite only with several scattered lateral setae; 7th tergite concave at the middle of posterior margin with a paddle-shaped depression to form both ends of posterior margin enlarged, and with 0–2 lateral setae and one anterior pair of trichoid sensilla; 8th tergite undeveloped and reduced to unsclerotized membrane, only with one anterior pair of trichoid sensilla. 2nd–6th sternites developed and strip-shaped; 2nd–5th sternites with anterior pair of closely set trichoid sensilla and an irregular but mostly single, posterior row of setae; 2nd and 3rd sternites covered with several scattered lateral and several central setae; 4th and 5ith sternites covered with many scattered lateral setae and several central setae; 6th sternite with anterior pair of closely set trichoid sensilla and an irregular but mostly double, posterior row of setae, covered with many scattered lateral setae and several central setae; 7th sternite same as 6th, but narrower than 6th, and covered with many scattered lateral setae and many central setae; 8th sternite same as 7th, but distinctly much narrower than 7th, and covered with several scattered lateral setae and several central setae.



Figures 1–6. *Gynandrobremia effurcata* Jiao & Bu sp. nov., ♂ (Male holotype, NKUCecid. No. MoGA001). 1. Third flagellomere, ventral view; 2. Wing, dorsal view; 3. Fore acropod, ventrolateral view; 4. Mid acropod, ventrolateral view; 5. Hind acropod, ventrolateral view; 6. Genitalia, dorsal view, the setae on the right gonopod removed.

Genitalia (Fig. 6). Gonocoxite slender, 2.2–2.3 times as long as wide, covered with many scattered long setae, with a slightly swollen and densely pubescent mediobasal lobe; gonostylus strong and longer, gradually arched and tapered from the distal 1/3 to apex, 0.91–0.93 times length of gonocoxite, longer than half the width of genitalia and being able to reach the other side of the apex of aedeagus, covered with a few setae and dense microtrichiae, with few setae located apically on the inner side, toothed apically; cerci with a deep depression almost as long as the distance between the two lobes, each rounded apically with a few long lateral setae; hypoproct fork-shaped, distinctly longer than cerci, emarginated with a deep depression forming two fingerlike lobes, each with a few short setae apically; aedeagus a little longer than gonocoxite, gradually tapered from base to apex except for being a little constricted in the distal 2/5, with the apex rough, covered with many pores and just tapered, but not pointed.

Female unknown.

Holotype. ♂, **China,** Heilongjiang, Shangzhi, Mao’er Mountain, Lüjiaweizi, 45.16°N, 127.30°E, 25-VII-2003, Jun LI leg., altitude 200 m, sweeping nets, NKUCecid. No. MoGA001. **Paratypes.** 4♂, same data as holotype, NKUCecid. No. MoGA002–005; ♂, ibid., 24-VII-2003, light traps, NKUCecid. No. MoGA006. All type specimens are deposited in NKUM.

Distribution. China (Heilongjiang Province).

Etymology. The species name *effurcata* means the male hypoproct is fork-shaped, emarginated with a deep depression forming two fingerlike lobes.

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